
CALLOWAY COUNTY

(Calloway County Water Service Area Map)

- Estimated 1999 population of 29,400-- 69% on public water
- Estimated 2020 population of 28,100--85% on public water
- 200 miles of water lines, with plans for 215 additional miles
- Estimated funding needs for public water 2000-2005--\$3,631,000
- Estimated funding needs for public water 2006-2020--\$3,218,000

Calloway County had an estimated population of 29,427 (13,214 households) in 1999 with a projected population of 28,100 (13,600 households) in 2020. Public water is provided to nearly 9,000 customers, or almost 70% of the county residents. In the remainder of the county, about 2/3 were served by wells and 1/3 by other sources. The population of the county is projected to decline by the year 2020. About 2,160 new households will be placed on public water through line extensions in 2000-2020.

Estimated Costs - Proposed Projects, 2000-2005

| COUNTY/System | | New Customers | | Rehab | Source | Treatment | Tanks/ Pumps | Total |
|---------------------|-------|---------------|----------------|-----------|-----------|-----------|-----------------|-----------|
| | Miles | Number | Cost in \$1000 | in \$1000 | in \$1000 | in \$1000 | in \$1000 | in \$1000 |
| CALLOWAY | | | | | | | | |
| MURRAY WATER SYSTEM | 90.6 | 947 | 2,356 | | | | 1,275 | 3,631 |
| TOTAL | 90.6 | 947 | 2,356 | | | | 1,275 | 3,631 |

Estimated Costs - Proposed Projects, 2006-2020

| COUNTY/System | | New Customers | | Rehab | Source | Treatment | Tanks/ Pumps | Total |
|----------------------------|-------|---------------|----------------|-----------|-----------|-----------|-----------------|-----------|
| | Miles | Number | Cost in \$1000 | in \$1000 | in \$1000 | in \$1000 | in \$1000 | in \$1000 |
| CALLOWAY | | | | | | | | |
| MURRAY WATER SYSTEM | 45.6 | 624 | 1,186 | | | | | 1,186 |
| BARDWELL CITY UTILITIES | 24.3 | 162 | 632 | | | | | 632 |
| CUNNINGHAM W/D | 26.8 | 209 | 698 | | | | | 698 |
| BARDWELL CITY UTILITIES | 13.8 | 102 | 358 | | | | | 358 |
| ARLINGTON WATER DEPARTMENT | 13.3 | 113 | 345 | | | | | 345 |
| TOTAL | 123.8 | 1210 | 3,218 | | | | | 3,218 |

PUBLIC WATER SYSTEMS

Calloway County is served by 23 water systems: 15 community systems--6 private, 4 water districts, 3 water associations, 2 municipalities--and 9 non-community systems. The Murray Water System is the primary water provider, serving about 3/4 of the households in the county and providing water to other systems.

WATER SERVICE AREAS

CALLOWAY COUNTY

Kentucky

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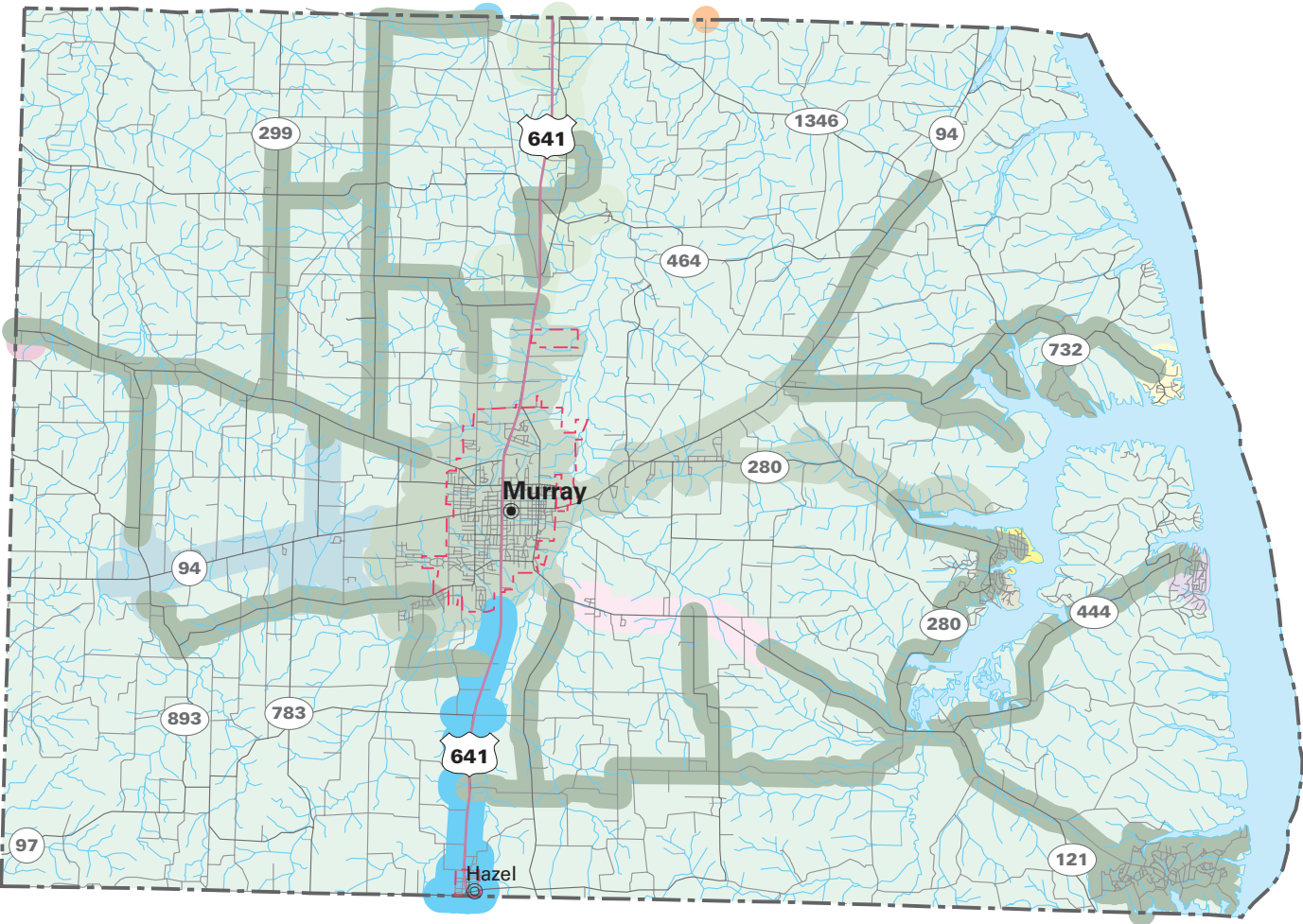
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| WATER SERVICE STATUS BY OWNER | | |
|-------------------------------|-----------------------|---|
| EXISTING SERVICE AREA | PROPOSED SERVICE AREA | |
| | | SOUTH 641 WATER DISTRICT |
| | | PANORAMA SHORES WATER ASSOCIATION |
| | | MURRAY WATER SYSTEM |
| | | MURRAY WATER DISTRICT #3 |
| | | MURRAY WATER DISTRICT #2 |
| | | LAKEWAY SHORES WATER ASSOCIATION INCORPORATED |
| | | JONATHAN CREEK WATER DISTRICT |
| | | DEXTER ALMO HEIGHTS WATER DISTRICT |
| | | COOL WATER WORKS INCORPORATED |
| | | CENTER RIDGE WATER SYSTEM |
| | | BENTON WATER AND SEWER SYSTEM |
| | | BENDEFIELD WATER ASSOCIATION |

DEXTER ALMO HEIGHTS WATER DISTRICT

PWSID: 0180102
System Type:..... COMMUNITY
Owner Type: WATER DISTRICT
Surface Source:
Purchase Source: CITY OF MURRAY
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.00
Percent Daily Average Production: 0.00
Total Tank Storage Capacity (gallons):..... 0.00
Total Service Connections: 415.00
Number of Employees:..... 0.00
Treatment Operator Class: 1D
Distribution Operator Class:
Customer Rate for 1,000 Gallons:..... 4.14
O/M costs 1997:..... 84,589.18
O/M costs per Service Connection: 180.36
Net Revenue 1997: 19,002.65
Total Water Produced 1997 (gallons):..... 0.00
Water Sold 1997 (gallons):..... 28,505,367.00
Unaccounted-for Water 1997 (%): 16.50

The Dexter-Almo Heights Water District currently serves 415 customers. The system purchases its water from the Murray Water System. The system spends 45% of its revenues on operation and maintenance.

SOUTH 641 WATER DISTRICT

PWSID: 0180185
System Type:..... COMMUNITY
Owner Type: WATER DISTRICT
Surface Source:
Purchase Source: CITY OF MURRAY
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.00
Percent Daily Average Production: 0.00
Total Tank Storage Capacity (gallons):..... 50,000.00
Total Service Connections: 353.00
Number of Employees:..... 1.00
Treatment Operator Class: 1D
Distribution Operator Class:
Customer Rate for 1,000 Gallons:..... 5.69
O/M costs 1997:..... 54,461.00
O/M costs per Service Connection: 162.57
Net Revenue 1997: 15,716.00
Total Water Produced 1997 (gallons):..... 0.00
Water Sold 1997 (gallons):..... 17,778,730.00
Unaccounted-for Water 1997 (%): 14.46

The South 641 Water District currently serves 353 customers through water purchased from the Murray Water System. The system currently purchases 58,000 gallons per day, and has a storage capacity of 125,000 gallons in two tanks. The system currently spends approximately 69% of its revenue on operation and maintenance.

MURRAY WATER DISTRICT #2

PWSID:..... 0180308
System Type:..... COMMUNITY
Owner Type:..... WATER DISTRICT
Surface Source:
Purchase Source:..... CITY OF MURRAY
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.00
Percent Daily Average Production:..... 0.00
Total Tank Storage Capacity (gallons):..... 0.00
Total Service Connections:..... 200.00
Number of Employees:..... 0.00
Treatment Operator Class:..... 1D
Distribution Operator Class:
Customer Rate for 1,000 Gallons:..... 3.25
O/M costs 1997:..... 33,349.69
O/M costs per Service Connection:..... 165.10
Net Revenue 1997:..... 7,014.59
Total Water Produced 1997 (gallons):..... 0.00
Water Sold 1997 (gallons):..... 13,612,900.00
Unaccounted-for Water 1997 (%):..... 3.48

The system currently serves 200 customers and employs no fulltime employees. The system purchases 40,000 gallons a day from Murray Water System. The system spends 85% of its revenue on operation and maintenance.

MURRAY WATER DISTRICT #3

PWSID:..... 0180309
System Type:..... COMMUNITY
Owner Type:..... WATER DISTRICT
Surface Source:
Purchase Source:..... CITY OF MURRAY
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.00
Percent Daily Average Production:..... 0.00
Total Tank Storage Capacity (gallons):..... 0.00
Total Service Connections:..... 291.00
Number of Employees:..... 2.00
Treatment Operator Class:..... 1D
Distribution Operator Class:

| | |
|---|---------------|
| Customer Rate for 1,000 Gallons:..... | 3.21 |
| O/M costs 1997:..... | 57,621.80 |
| O/M costs per Service Connection:..... | 196.66 |
| Net Revenue 1997:..... | 2,224.64 |
| Total Water Produced 1997 (gallons):..... | 0.00 |
| Water Sold 1997 (gallons):..... | 20,625,700.00 |
| Unaccounted-for Water 1997 (%): | 0.00 |

The system currently serves 291 customers. The system purchases approximately 55,000 gallons per day from the Murray Water System. The system spends 91% of revenue on operation and maintenance.

MURRAY WATER SYSTEM

| | |
|---|--------------------------|
| PWSID:..... | 0180306 |
| System Type:..... | COMMUNITY |
| Owner Type:..... | MUNICIPAL |
| Surface Source: | |
| Purchase Source: | CITY OF MURRAY |
| Well Source: | Yes |
| Sells Water to: | SOUTH 641 WATER DISTRICT |
| Treatment Plant Capacity (MGD):..... | 7.00 |
| Percent Daily Average Production: | 46.00 |
| Total Tank Storage Capacity (gallons):..... | 1,250,000.00 |
| Total Service Connections: | 6,453.00 |
| Number of Employees:..... | 30.00 |
| Treatment Operator Class:..... | 3D |
| Distribution Operator Class: | 4B |
| Customer Rate for 1,000 Gallons:..... | Not available |
| O/M costs 1997:..... | Not available |
| O/M costs per Service Connection: | Not available |
| Net Revenue 1997:..... | Not available |
| Total Water Produced 1997 (gallons):..... | Not available |
| Water Sold 1997 (gallons):..... | Not available |
| Unaccounted-for Water 1997 (%): | Not available |

The Murray Water System currently serves 6,929 customers and sells water to four water systems. The system provides its customers from six wells. The treatment plant is rated to treat 7 million gallons per day. The average daily production is 3.1 million gallons per day. The system has 5 water tanks with a combined capacity of 4.75 million gallons. The system is a class IV.

CENTER RIDGE WATER SYSTEM

| | |
|-------------------|-------------------|
| PWSID:..... | 0180549 |
| System Type:..... | COMMUNITY |
| Owner Type:..... | WATER ASSOCIATION |
| Surface Source: | |

Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.09
Percent Daily Average Production: 40.00
Total Tank Storage Capacity (gallons):..... 1,000.00
Total Service Connections: 77.00
Number of Employees:..... 0.00
Treatment Operator Class:
Distribution Operator Class: 1BD
Customer Rate for 1,000 Gallons:..... 1.61
O/M costs 1997:..... 8,585.00
O/M costs per Service Connection: 111.49
Net Revenue 1997: 3,043.00
Total Water Produced 1997 (gallons):..... 7,366,000.00
Water Sold 1997 (gallons):..... 7,218,680.00
Unaccounted-for Water 1997 (%): 2.00

Center Ridge currently has 77 customers, and has a daily withdrawal of 24,000 from its one well. The treatment plant treats on the average of 21,000 gallons per day, but has a capacity of 87,000. The system has a storage capacity of 1,000 gallons. The system spends 73% of its revenue on operation and maintenance.

BENDEFIELD WATER ASSOCIATION

PWSID:..... 0180103
System Type:..... COMMUNITY
Owner Type: WATER DISTRICT
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.03
Percent Daily Average Production: 40.00
Total Tank Storage Capacity (gallons):..... 750.00
Total Service Connections: 19.00
Number of Employees:..... 1.50
Treatment Operator Class:
Distribution Operator Class: 1BD
Customer Rate for 1,000 Gallons:..... Not available
O/M costs 1997:..... Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons):..... Not available
Water Sold 1997 (gallons):..... Not available
Unaccounted-for Water 1997 (%): Not available

The Association currently has 19 customers. The association withdraws approximately 4000 gallons per day and the same amount is treated at the treatment plant. The System has a storage capacity of 750 gallons. It is rated as an IBD, and employs one fulltime employee.

PANORAMA SHORES WATER ASSOCIATION

PWSID: 0180506
System Type: COMMUNITY
Owner Type: WATER ASSOCIATION
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD): 0.05
Percent Daily Average Production: 43.00
Total Tank Storage Capacity (gallons): 4,000.00
Total Service Connections: 125.00
Number of Employees: 2.00
Treatment Operator Class:
Distribution Operator Class: 1BD
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The association currently has 125 members that are provided water from two wells. The wells have an average daily withdrawal of 20,000 gallons per day. The treatment plant treats 24,000 gallons per day. The system has a 4,000 gallon water tank for storage. The system spends 84% of its revenues on operation and maintenance. The system is a class IID system, and has 2 fulltime employees.

LAKEWAY SHORES WATER ASSOCIATION INCORPORATED

PWSID: 0180508
System Type: COMMUNITY
Owner Type: WATER ASSOCIATION
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD): 0.00
Percent Daily Average Production: 24.00
Total Tank Storage Capacity (gallons): 1,800.00
Total Service Connections: 64.00
Number of Employees: 0.00

Treatment Operator Class:
Distribution Operator Class: 1BD
Customer Rate for 1,000 Gallons:..... Not available
O/M costs 1997:..... Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons):..... Not available
Water Sold 1997 (gallons):..... Not available
Unaccounted-for Water 1997 (%): Not available

The association has 64 members. The association currently withdraws 9,000 gallons per day from its well. The association has another well for emergency purposes. The association's treatment plant is rated to treat only 2,000 gallons per day, but has an average daily treatment of 6,800 gallons per day. The system has on storage tank that holds 1,800 gallons. The system spends 11% of revenue on operation and maintenance. .

COOL WATER WORKS INCORPORATED

PWSID: 0180509
System Type:..... COMMUNITY
Owner Type: PRIVATE
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD):..... 0.07
Percent Daily Average Production: 15.00
Total Tank Storage Capacity (gallons):..... 2,500.00
Total Service Connections: 109.00
Number of Employees:..... 0.00
Treatment Operator Class:
Distribution Operator Class: 2BD
Customer Rate for 1,000 Gallons:..... 0.00
O/M costs 1997:..... 13,166.03
O/M costs per Service Connection: 105.33
Net Revenue 1997: 1,599.47
Total Water Produced 1997 (gallons):..... 0.00
Water Sold 1997 (gallons):..... 0.00
Unaccounted-for Water 1997 (%): 0.00

Cool Water Works currently has 109 customers and has no fulltime employees. The system currently withdraws 9,600 gallons per day from its two wells. The system has a treatment plant, which currently treats all the water the system uses. The private, community system has treatment capacity of 69,000 gallons per day and storage capacity of 2,500 gallons.

OTHER SYSTEMS

SHADY OAK TRAILER PARK

Shady Oak Trailer Park is located in Calloway County. The system serves a population of 277 and has 84 service connections. The private, community system has treatment capacity of 48,000 gallons per day. The water source is ground water from wells.

STELLA TRAILER PARK

Stella Trailer Park is located in Calloway County. The system serves a population of 92 and has 28 service connections. The private, community system has treatment capacity of 7,000 gallons per day. The water source is ground water from wells.

KENIANA HOMOWNERS ASSOC

Keniana Homowners Assoc is located in Calloway County. The system serves a population of 132 and has 40 service connections. The private, community system has treatment capacity of 29,000 gallons. The water source is ground water from wells.

IRVIN COBB RESORT

Irvin Cobb Resort is located in Calloway County. The system serves a population of 49 and has 30 service connections. The private, community system has treatment capacity of 10,800 gallons per day. The water source is ground water from wells.

PARADISE RESORT

Paradise Resort is located in Calloway County. The system serves a population of 40 and has 1 service connection. The transient, non-community system water source is ground water from wells.

DOGWOOD RESORT

Dogwood Resort is located in Calloway County. The system serves a population of 130 and has 38 service connections. The private, transient, non-community system has treatment capacity of 28,800 gallons per day. The water source is ground water from wells.

CYPRESS SPRINGS RESORT

Cypress Springs Resort is located in Calloway County. The system serves a population of 200 and has 2 service connections. The private, transient, non-community system has treatment capacity of 15,000 gallons per day. The water source is ground water from wells.

LYNHURST RESORT

Lynhurst Resort is located in Calloway County. The system serves a population of 85 and has 1 service connection. The private, transient, non-community system has treatment capacity of 6,000 gallons per day. The water source is ground water from wells.

BLOOD RIVER TRAILER PARK

Blood River Trailer Park is located in Calloway County. The system serves a population of 100 and has 30 service connections. The private, transient, non-community system has treatment capacity of 20,000 gallons per day. The water source is ground water from wells.

LAKEVIEW RV PARK

Lakeview Rv Park is located in Calloway County. The system serves a population of 200 and has 65 service connections. The private, transient, non-community system has treatment capacity of 15,000 gallons per day. The water source is ground water from wells.

L H & M WATER ASSOCIATION

L H & M Water Association is located in Calloway County. The system serves a population of 96 and has 29 service connections. The association, transient, non-community system has treatment capacity of 7,000 gallons per day. The water source is ground water from wells.

MISSING HILL RESORT

Missing Hill Resort is located in Calloway County. The system serves a population of 25 and has 6 service connections. The private, transient, non-community system has treatment capacity of 5,000 gallons per day. The water source is ground water from wells.

IRVIN COBB MARINIA

Irvin Cobb Marina is located in Calloway County. The system serves a population of 39 and has 1 service connection. The private, transient, non-community system has treatment capacity of 2,000 gallons per day. The water source is ground water from wells.

MSU HANDCOCK BID

Msu Handcock Bid Station is located in Calloway County. The system serves a population of 30 and has 1 service connection. The state, transient, non-community system has treatment capacity of 7,000 gallons per day. The water source is ground water from wells.

PRIVATE DOMESTIC SYSTEMS

About 8,500 people in Calloway County rely on private domestic water supplies: 5,700 on wells, and 2,800 on other sources.

Abundant quantities of ground-water is available for domestic, irrigation, and industrial uses in Calloway County from depths of a few feet to below 700 feet with most wells less than 100 foot. A few wells obtain shallow perched water from gravel or alluvial deposits but these zones often will not yield sufficient water for an adequate domestic supply during periods of low rainfall, which is common in late summer and fall. In general, the chemical quality of the water is good, but water from some aquifers contains objectionable amounts of iron and manganese. Water from alluvium and limestone in this county is generally hard to very hard with moderate to high levels of dissolved solids. Water from the unconsolidated sand and/or gravel, non-alluvium aquifers are considered soft and slightly acidic with low dissolved solids.

Water quality generally is good except in areas where downward percolation of surface water and fluids from domestic sewage-disposal systems, and other sources of domestic or industrial pollution have contaminated the aquifer. In a few wells harmful amounts of nitrate have been detected. Ground water sometimes contains iron naturally in objectionable amounts from the deeper zones. In some formations with slightly acidic ground-water, a chemical reaction between the acidic ground-water and steel well casing and pump equipment will produce a high iron content in the water which is not naturally occurring.
